

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference IP/P7200/WOD	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 03/04741	International filing date (day/month/year) 04/11/2003	(Earliest) Priority Date (day/month/year) 08/11/2002
Applicant QINETIQ LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

FLEXTENSIONAL VIBRATION SENSOR

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 4

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 03/04741

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A vibrating sensing device, package and system and a method of manufacturing a vibration sensing device are disclosed. The vibration sensing device comprises a body (11) whose geometry is such that it exhibits flexensional properties.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/04741

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01V1/18 G10K9/12 G01H9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01V G10K G01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
✓ X	US 4 951 271 A (GARRETT STEVEN L ET AL) 21 August 1990 (1990-08-21) column 1, line 34 - line 37 column 2, line 19 - line 47 column 3, line 33 - line 45 column 3, line 65 - column 4, line 10 column 4, line 36 - column 5, line 8 figure 1	1-43, 48-50
A	----	44-47, 51
✓ X	US 5 212 670 A (BROWN DAVID A) 18 May 1993 (1993-05-18) column 1, line 59 - column 2, line 1 column 3, line 16 - line 27 column 4, line 61 - line 66 column 5, line 40 - line 58 figure 1 ----- -/-	1-43, 48-50

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

26 February 2004

Date of mailing of the international search report

08/03/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Schneiderbauer, K

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/04741

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
✓ X	DANIELSON D A ET AL: "FIBER-OPTIC ELLIPSOIDAL FLEXTENSIONAL HYDROPHONES" JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US, vol. 7, no. 12, 1 December 1989 (1989-12-01), pages 1995-2002, XP000103658 ISSN: 0733-8724 page 1996, right-hand column; figure 1 page 2000, left-hand column -page 2001, right-hand column ---	1-43, 48-50
✓ X	US 2001/022757 A1 (XU QI-CHANG ET AL) 20 September 2001 (2001-09-20) page 1, paragraph 4 page 1, paragraphs 9,10 page 3, paragraph 56 -page 4, paragraph 57 page 5, paragraph 63 figures 1,4 ---	1,36
✓ X	CA 2 007 096 C (ALLIED SIGNAL INC) 19 July 1996 (1996-07-19) page 1, line 13 - line 18 page 4, line 10 - line 19 page 5, line 2 - line 5 figures 1,2 ---	1,36
✓ A	WO 01 12345 A (ENGDAHL GOERAN ;HYMAG G ENGDAHL (SE)) 22 February 2001 (2001-02-22) page 1, line 22 - line 24 page 6, line 11 - line 14 page 9, line 12 - line 24 figure 1 ---	1,4,7
✓ A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 530 (P-1809), 6 October 1994 (1994-10-06) -& JP 06 180995 A (MIYAZAKI OKI ELECTRIC CO LTD;OTHERS: 01), 28 June 1994 (1994-06-28) abstract; figure 1 -----	1,36

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/04741

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4951271	A	21-08-1990	NONE	
US 5212670	A	18-05-1993	NONE	
US 2001022757	A1	20-09-2001	US 6278658 B1 EP 1039444 A2	21-08-2001 27-09-2000
CA 2007096	C	19-07-1996	CA 2007096 A1	19-07-1996
WO 0112345	A	22-02-2001	SE 514569 C2 AU 5861800 A EP 1202820 A1 NO 20020371 A WO 0112345 A1 SE 9902894 A	12-03-2001 13-03-2001 08-05-2002 10-04-2002 22-02-2001 14-02-2001
JP 06180995	A	28-06-1994	NONE	

REC'D 05 MAR 2004

INTERNATIONAL SEARCH REPORT

WIPO

PCT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference IP/P7200/WOD	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 03/04741	International filing date (day/month/year) 04/11/2003	(Earliest) Priority Date (day/month/year) 08/11/2002
Applicant QINETIQ LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

FLEXTENSIONAL VIBRATION SENSOR

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

4

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/04741

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01V1/18 G10K9/12 G01H9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01V G10K G01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 951 271 A (GARRETT STEVEN L ET AL) 21 August 1990 (1990-08-21) column 1, line 34 - line 37 column 2, line 19 - line 47 column 3, line 33 - line 45 column 3, line 65 - column 4, line 10 column 4, line 36 - column 5, line 8 figure 1	1-43, 48-50
A	---	44-47, 51
X	US 5 212 670 A (BROWN DAVID A) 18 May 1993 (1993-05-18) column 1, line 59 - column 2, line 1 column 3, line 16 - line 27 column 4, line 61 - line 66 column 5, line 40 - line 58 figure 1	1-43, 48-50

	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

26 February 2004

Date of mailing of the international search report

08/03/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5618 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Schneiderbauer, K

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 03/04741

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DANIELSON D A ET AL: "FIBER-OPTIC ELLIPSOIDAL FLEXTENSIONAL HYDROPHONES" JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US, vol. 7, no. 12, 1 December 1989 (1989-12-01), pages 1995-2002, XP000103658 ISSN: 0733-8724 page 1996, right-hand column; figure 1 page 2000, left-hand column -page 2001, right-hand column	1-43, 48-50
X	US 2001/022757 A1 (XU QI-CHANG ET AL) 20 September 2001 (2001-09-20) page 1, paragraph 4 page 1, paragraphs 9,10 page 3, paragraph 56 -page 4, paragraph 57 page 5, paragraph 63 figures 1,4	1,36
X	CA 2 007 096 C (ALLIED SIGNAL INC) 19 July 1996 (1996-07-19) page 1, line 13 - line 18 page 4, line 10 - line 19 page 5, line 2 - line 5 figures 1,2	1,36
A	WO 01 12345 A (ENGDAHL GOERAN ;HYMAG G ENGDAHL (SE)) 22 February 2001 (2001-02-22) page 1, line 22 - line 24 page 6, line 11 - line 14 page 9, line 12 - line 24 figure 1	1,4,7
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 530 (P-1809), 6 October 1994 (1994-10-06) -& JP 06 180995 A (MIYAZAKI OKI ELECTRIC CO LTD;OTHERS: 01), 28 June 1994 (1994-06-28) abstract; figure 1	1,36

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/04741

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4951271	A	21-08-1990	NONE	
US 5212670	A	18-05-1993	NONE	
US 2001022757	A1	20-09-2001	US EP	6278658 B1 1039444 A2
				21-08-2001 27-09-2000
CA 2007096	C	19-07-1996	CA	2007096 A1
				19-07-1996
WO 0112345	A	22-02-2001	SE AU EP NO WO SE	514569 C2 5861800 A 1202820 A1 20020371 A 0112345 A1 9902894 A
				12-03-2001 13-03-2001 08-05-2002 10-04-2002 22-02-2001 14-02-2001
JP 06180995	A	28-06-1994	NONE	